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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,370	10/03/2003	Kiichiro Takahashi	00862.023257.	9738

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EXAMINER

NGUYEN, LAMSON D

ART UNIT PAPER NUMBER

2861

DATE MAILED: 05/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/677,370	<b>Applicant(s)</b> TAKAHASHI ET AL.	
	<b>Examiner</b> Lamson D. Nguyen	<b>Art Unit</b> 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6, 7, 19 and 20 is/are allowed.
- 6) ☒ Claim(s) 1, 3-5, 8, 10-18, 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 2 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/04/04</u> | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 8, 11-14, 16, 18, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Koike et al. (5,614,931).

***Koike teaches a printing method comprising:***

**Claims 1, 8, 21:**

- a generation step of generating printing data to be printed by each of at least first and second adjacent nozzle arrays on the basis of tone information of image data to be printed (column 5, lines 35-40, figure 1, nozzle arrays 1a-1d)
- a printing step of printing by discharging ink to a pixel of the printing medium from the first and second nozzle arrays on the basis of the printing data generated in the generating step (figures 8a-c)
- wherein in the generation step, printing data corresponding to each array is generated in a range in which a sum of the number of dots to be printed by the first nozzle and the number of dots printed by the second nozzle array does not exceed a predetermined number (figures 8a-c teach number of dots of black, cyan, magenta, and yellow allowed to print in an image area)

**Claims 4, 11:**

- wherein in the generation step, printing data corresponding to each of the first and second printing nozzle arrays is so generated as to relatively decrease the number of printing dots by the second printing nozzle array as the number of printing dots by the first printing nozzle array relatively increases (figure 8a teaches number of drops of cyan and black increase or decrease relatively to each other)

**Claim 5:**

- a generation step of generating printing data to be printed by each of at least first and second adjacent nozzle arrays on the basis of tone information of image data to be printed (column 5, lines 35-40, figure 1, nozzle arrays 1a-1d)
- a printing step of printing by discharging ink to a pixel of the printing medium from the first and second nozzle arrays on the basis of the printing data generated in the generating step (figures 8a-c)
- wherein in the generation step, printing data to be printed in the predetermined region by each of the first and second nozzle arrays is so generated as to suppress a sum of a printing ratio of printing by the first print nozzle array and a printing ratio of printing by the second printing nozzle array to be not more than a predetermined ratio (figures 8a-c teach number of dots of black, cyan, magenta, and yellow allowed to print in an image area)

**Claim 12:**

- wherein the first ink amount discharged from the first printing nozzle array by one discharge is larger than the second ink amount discharged from the second printing nozzle array by one discharge (figure 8a teaches amount of cyan is greater than amount of black)

**Claim 13:**

- a first printing ratio by the first array is higher than a second printing by the second array (figure 8a teaches number of dots of cyan is higher than number of dots of black)

**Claim 14:**

- wherein said generation means independently generates printing data corresponding to the first and second printing nozzle arrays (figures 8a-c print dots of each color independently)

**Claim 16:**

- the first and second printing ratios are set different from each other in each printing mode (figures 8a-c)

**Claim 18:**

- wherein the first and second printing nozzle arrays discharge different types of inks (figure 1 teaches nozzle arrays 1a-1d ejecting different ink colors)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 10, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koike et al in view of Torgerson et al. (6,315,389).

***Koike teaches all claimed features of the invention except:***

- (claims 3 and 10) the first and second arrays are arranged via a common ink chamber
- (claim 17) the first and second arrays discharge the same type of ink

It is well-known in the art of inkjet printers to have two nozzle arrays ejecting the same ink connected to the same ink chamber, as taught by Torgerson et al. (figure 1, nozzle arrays 62 and 63 connected to chamber 72).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Koike to incorporate the teaching of common ink chamber as taught by Torgerson for the purpose of increasing number of printing nozzles.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koike in view of Sakurada et al. (4,635,078).

Koike teaches all claimed features of the invention except:

- index processing of converting one printing data generated on the basis of image data to be printed into printing data for the plurality of printing nozzle arrays is performed

It is well-known in the art to index process to convert data generated on the basis of image to be printed into printing data for a plurality of nozzle arrays as taught by Sakurada et al (figures 6-7).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Koike to incorporate the teaching of index processing as taught by Sakurada for the purpose of producing an intermediate gradient image.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koike in view of Neese et al. (6,302,511).

Koike teaches all claimed features of the invention but does not explicitly teach:

- a host apparatus that supplies printing data to the inkjet apparatus

It is extremely well-known in the art of inkjet printer to receive printing data from an external host as taught by Neese (figure 1, host computer # 50).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Koike to incorporate the teaching of a host computer taught by Neese et al for the purpose of furnishing printing data to the inkjet printer to print a particular image.

#### ***Allowable Subject Matter***

Claims 6-7 and 19-20 are allowed.

Claims 2 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

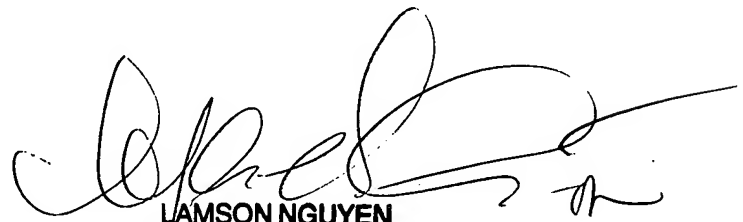
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamson D. Nguyen whose telephone number is 571-272-2259. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Talbott can be reached on 571-272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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LAMSON NGUYEN  
PRIMARY EXAMINER  
05/23/05